DOCUMENT RESUME

ED 214 260 EA 014 486

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TITLE Critical Factors for Implementing Competency-Based Education.
PUB DATE Mar 82
NOTE 15p.; Paper presented at the Annual Meeting of the American Educational Research Association (New York, NY, March 19-23, 1982).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Administrator Role; *Competency Based Education; Educational Resources; Elementary Secondary Education; Inservice Teacher Education; *Program Implementation; Teacher Attitudes; Teacher Participation; Teacher Responsibility; Teacher Role
IDENTIFIERS New York

ABSTRACT

A shortened version of a more complete research report, this paper presents a study that attempted to identify factors important for the successful implementation of competency based education. First, literature on program implementation was reviewed and factors important to successful implementation were identified, such as administrative support, past experience of the school and of individual teachers, resources available, lines of authority, and respect for teachers' professional integrity. These factors were incorporated in a survey of vocational teachers in New York State participating in the state's competency-based vocational education program. Surveys completed by 284 teachers (60 percent of the sample) identified factors critical for successful program implementation: administrator support, practicality for classroom use, resource availability, teachers' perception of needs, teacher orientation and training, and encouragement of teacher autonomy and initiative. The findings are intended to provide guidelines that program implementors may utilize in their planning processes. (Author/JM)

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Critical Factors for Implementing Competency-Based Education

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Presented at the meeting of the
American Educational Research Association, New York
March 21, 1982

EA 014 486

Introduction

The overall objective of this research was to empirically identify those factors which are most important for the successful implementation of competency based educational (CBE) programs. A review of both the empirical and theoretical literature dealing with change and implementation revealed very little specifically related to CBE. Nevertheless, by using a theoretical framework developed from the review of the literature, we were able to identify those factors which are theoretically important to the implementation of a CBE program.

Theoretical Perspective

The theoretical literature supported a framework which divided implementation problems into two major categories: (a) personnel related and (b) administrator related. The research staff identified within each of those categories several subsets of issues. Due to time limitations, only a few of the most crucial factors will be mentioned in this presentation.

One personnel-related problem is that teachers are often expected to change some of their teaching roles and maintain others without benefit of the time allowance and assistance they need to adjust to the new role. Administrators need to allow sufficient time for teachers to adjust to the new role as well as to learn precisely what the new role will entail. Also, to facilitate this process, face-to-face interaction and mechanisms for listening to teachers and resolving teacher problems are extremely important.

Another point is that teachers must be thoroughly prepared to adjust to unfamiliar practices. Some techniques which have been found

to be effective are: (1) shared decision making through consultation; (2) workshops and total staff involvement (including administrators); and (3) improved communications between all authority levels within all departments.

In addition, certain factors which are peculiar to CBE programs were identified. In general, however, the problems of implementing CBE programs appeared to overlap significantly with those of implementing any change in school policies and practices, particularly those involving innovative curricula.

Under administrative related problems, two fundamental tasks of implementation were identified. The first task of administrators is to respect the attitudes, knowledge and desires of their teaching personnel. Teachers enjoy sanctions over administrators as well as administrators over teachers; e.g., they can withhold cooperation in various ways. Thus, in the implementation of innovation, the spheres of influence of both teachers and administrators must be respected.

The second fundamental task of implementation is to recognize and anticipate the need for working out the "bugs" in the system. Administrators must provide teachers with everything they need to facilitate their required activities. A period of debugging should be included as an institutionalized part of the implementation process, allowing not only adequate time, but also a specific mechanism, which would respond quickly to user needs and problems.

In addition to these two fundamental tasks of administrators, organizational factors and standard administrator coordination activities which influence implementation were identified. Into this

category fall such factors as: clear organizational lines of authority, avoidance of time delays, minimizing duplication, and maximizing program coherence, efficiency and effectiveness.

There is, of course, considerable conceptual overlap between personnel-related and administrator-related problems of implementation. Both to make the major factors more accessible and to aid in designing a survey for the evaluation of a particular CBE curricular innovation, the following "domains" were defined, and are presented in Table 1 (overhead).

Table 1

Domains Relevant to CBE Implementation

1. Administrative Support: awareness and understanding, on the part of administrators, of the impact the innovation will have on the teacher. It includes knowledge of the innovation and how it translates into specific behaviors, as well as planning ahead and assessing the needs that teachers have.
2. Past Experiences: the history of both the school and individual teachers in dealing with implementation. Teachers' previous negative experiences stand in the way of implementation.
3. Resources: assessment of whether an innovation can be implemented, including whether the resources, technology, expertise, facilities, etc. are adequate.
4. Authority and Perceived Guidelines: clearly delineated and well understood lines of authority.
5. Teachers' Professional Integrity: teachers' influence in legitimate areas should not be violated and should be treated with respect.

In turn, these broad categories may be divided into a number of sub categories, such as are shown in Table 2 (overhead).

Table 2

Implementation Issues Category Scheme

I. Administrative Support

A. Support and positive attitude
B. Personal interaction
C. General knowledge of implementation
D. Knowledge of teacher behaviors
E. Administrative action

II. Past Experiences

A. Effects of previous unsuccessful innovation
B. Effects of previous unsuccessful implementation efforts
C. Effects of censure of other teachers
D. Effects of previous innovation on teachers' careers
E. Effects of traditional practices

III. Resources

A. Funding of programs
B. Timeliness/Adequacy of materials delivery
C. Quality of teaching materials
D. Public Relations
E. Availability of training personnel
F. Usefulness of workshops
G. Availability of "troubleshooters"

IV. Authority and Perceived Guidelines

A. Guidelines of how modifiable each component of the innovation is
B. Specifications of the individual responsibilities
C. General understanding of how/where to report specific concerns
D. Appropriate delegation of responsibility
E. Provinces of authority clear; minimum of decision conflicts
F. Effective administrative communication

V. Teachers' Professional Integrity

A. Perception of inservice training
B. Perceived role in authority structure
C. Perceived benefits to students
D. Attitude toward program
E. Teaching behavior, skills and patterns

Methods

The theoretical framework just outlined was used as the basis for developing a survey, the purpose of which (as stated above) was to evaluate how accurately this theoretical framework can be used to describe the current status of a CBE program, using primarily teachers' responses. In short, the adequacy and usefulness of the framework was being tested.

The domains specified in Table 2 (overhead) were used as a means for developing self-report survey items, and to assure reasonably complete coverage of key dimensions identified in the literature.

The survey development process was detailed and thorough; in fact, it was somewhat too complicated to discuss in the allotted time. Suffice it here to say that steps were taken to insure: (a) that the domains adequately reflected the literature; (b) that the items adequately represented these domains; (c) that the items were meaningful to teacher respondents having at least a minimal familiarity with the innovation. Item writing and reviewing was done both by researchers and teachers. The overall adequacy of the instrument was independently checked by a researcher who was thoroughly familiar with the literature but had not participated in the item writing. The final product contained 60 likert-type items, with 4-response choices varying between "strongly agree" and "strongly disagree," plus approximately ten background or demographic items.

Background information included such items as type of involvement and length of time involved with the innovation, number of years teaching, size and number of classes using the innovation, etc.

These items were selected because the theoretical framework suggested probable response differences among teachers, on specific items, as a function of these background differences. These items were, therefore, the key to validating the theoretical framework.

Data Source

A total of 560 vocational teachers in New York State were selected as respondents. These teachers comprised as complete a listing as was available of teachers participating in the statewide CBVE program. In all, 284 completed and usable surveys were returned. This sample comprised approximately 60 percent of delivered surveys.

Results and Conclusions

Data from the teacher surveys were analyzed using statistical programs within the SPSS system. A factor analysis of the teacher survey identified six factors which were similar to those dimensions used to construct the survey. They were: administrators' support, practicality for classroom use, teachers' and material availability, and teachers' autonomy and initiative.

These factors are listed and defined briefly in Table 3 (overhead).

Table 3

Factors Identified in Teachers' Survey Responses

1. Administrator Support: administrators' awareness and understanding regarding the impact the innovation will have on the teacher.
2. Practicality for Classroom Use: teachers' overriding concern with practicality and effectiveness in meeting their teaching needs.
3. Teachers' Perception of Needs: areas in which teachers perceive needs and make recommendations for changes, especially how to use and adapt the curricular materials.
4. Teachers' Orientation and Training: teachers' awareness of the importance of the information and training they receive.
5. Resource and Materials Availability: assesses whether an innovation can be implemented, particularly in terms of the actual materials, their availability, and the people who help teachers to use these materials.
6. Teachers' Autonomy and Initiative: assesses whether the system is perceived to encourage teachers' input and discretion in how the innovation is used.

Further insight into these factors - the items that measured them with their loadings, their relation to the original domains, etc. - is provided as a supplement to our paper, which will be made available upon request.

By itself the factor structure suggests that teachers' perceptions correspond rather well to the variables identified in the literature. However, the most crucial step in testing the theoretical framework was the explicit statement of hypotheses relating the background items to these factors. Without these hypotheses, no clear validation of the framework could have been accomplished.

Due to time restrictions, let me present one fairly straightforward hypothesis, and the results bearing upon this hypothesis. Other results are included in the full paper.

The importance of involving teachers in all aspects of the implementation process was a key concept in our framework. Therefore, it was expected that those who had been more "involved" (by either being assigned added responsibilities and gaining some extra status or by participating in a special field test) would have a higher regard for the innovation. This was expected to show up in higher average scores on all six factors.

This prediction was generally confirmed. A special category of participant, called a "Team Leader," had more positive views as measured by four of the six factors. Apparently, those who are only marginally involved as were the majority of the teachers are unsure of the practicality of the innovation, how to use it, whether the resources provided have been adequate, and whether they feel encouraged

to use their own initiative. Participants in the special field test also were more positive than non-participants overall. They rated the materials and resources more useful, their training and orientation more adequate, their administrators more supportive, and the resources and materials more accessible.

Other Results

In general, the results obtained essentially validated the theoretical framework which directed it. These results are summarized in the full paper, and readers may judge for themselves. In addition to teacher survey results, interviews with individuals who had key roles in the project also appeared to support the theoretical framework. Finally, an administrator survey was developed and responses were collected from nearly 100 administrators. The results from this source also tended to corroborate those of the teacher survey.

Significance of the Research

The findings of this research are extremely important for anyone considering implementing competency based educational programs. They empirically validate the dimensions regarded, theoretically, as critical to implementation, and seen, practically, as essential to success. The research also provides a framework and procedure which program implementors may utilize in their planning process. State and local coordinators may therefore make much more efficient use of their time and resources when implementing an innovative program. Because we have validated several theoretically important factors which need to be considered, administrators can now focus their attention on critical issues and not squander their time on issues which will have little impact on the ultimate outcome of the project.

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